

Therapeutic Storytelling Authoring Tools for Post-Traumatic Stress

DARPA SBIR 11.2 Topic 003

Develop user-friendly authoring tools to help Service Members express combat-related experiences through personal narratives in a graphic novel/sequential art format that will enable them to process their memories and emotions through healthy, constructive activities.

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Graphic Novel Art Therapy (GNAT)



KEYWORDS: Graphic Novel, Sequential Art, Web, Therapy, Storytelling, Serious Comics, Impact Comics, Graphic Novel Art Therapy, Memories, Emotions, Combat Experiences, PTSD, Psychological Health, Mental Health.

TECHNOLOGY AREAS: Human Systems

OBJECTIVE: Develop user-friendly authoring tools to help Service Members express combat-related experiences through personal narratives in a graphic novel/sequential art format that will enable them to process their memories and emotions through healthy, constructive activities.

DARPA's SBIR/STTR Program

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DARPA's mission is to prevent technological surprise for the United States and to create technological surprise for its adversaries.

The DARPA SBIR and STTR Programs are designed to provide small, high-tech businesses and academic institutions the opportunity to propose radical, innovative, high-risk approaches to address existing and emerging national security threats; thereby supporting DARPA's overall strategy to bridge the gap between fundamental discoveries and the provision of new military capabilities.



DESCRIPTION: Art Therapy and narrative are both useful techniques for helping individuals traumatized by life experiences process memories and channel emotions through a healthy outlet. Narratives related to experiences do not necessarily have to be veridical representations of history. A good example of channeling emotion and memories related to combat experiences into storytelling is Joe Haldeman's, "Forever War" published in 1974 and winning both the Hugo and Nebula Awards in which Haldeman translates experiences and feelings related to the Vietnam War into a Science Fiction theme. Graphic novels/sequential art have rich traditions of high-quality artwork and rich storytelling related to combat experiences as exemplified in the 1951 series, "Frontline Combat" and the 1966 series, "Blazing Combat". Considered political in their day for their stark portrayals of war, both are now considered hallmarks of the genre both stylistically and in the emotionality of their content. Likewise the recent work of Garry Trudeau has chronicled the road to recovery following combat injuries with both humor and sensitivity. The current effort is aimed at providing authoring toolkits to allow Service members and Veterans to relate their own stories via a graphic novel/sequential art format of equally high quality.

The goal is to create web-based software with a simple interface that assists in both storytelling and graphical content creation that can relate experiences either directly or metaphorically. While providing simple-to-use authoring tools, the results should have the look and feel of a professional product and provide the flexibility of telling a wide range of stories. For example, content creation could relate to modern combat, historical combat, science fiction, or fantasy. But, the authoring tools **MUST** allow the user to draw from a library of artwork, icons, and other templates to assist them in telling a story related to combat experiences. The software tools must assist the user at every opportunity to tell a story and the end result should be a professional looking narrative comparable to the best graphic novels/sequential art. The tool should also include pre-prepared examples of full-stories that can be used for inspiration and guidance. Innovation is key to this program and software must be designed to inspire, encourage, and guide users in the development of their own storylines and to guide them to additional resources if they are interested in exploring and/or obtaining personalized support and services. One of the sub-goals of this program is to determine the best way to use these narratives tools. Can they be a stand-alone resource? Can they be used as an aid to formal therapy? Is this approach safe and effective? Therefore, teams must be well-rounded.

Innovation in the program is seen in the areas of user-interface design, flexibility of tool to tell a wide-range of stories, and the quality of the artwork and storytelling produced by the tool. Metrics for success should be clearly specified and should take into account both usability and psychological health issues.

PHASE I: Develop a conceptual design and model key elements for art therapy and narrative authoring tools that will allow service members to tell their own stories related to deployment experiences in a simple, intuitive Web Browser based graphic novel/sequential art format. In

preparation for Phase II, develop a robust methodology with clear metrics for assessing usability, user acceptance, and effectiveness of the web tool. It is important to note that there will be no human use testing in Phase I.

Test key hypotheses by developing, constructing, and testing prototype subsystems. Determine best methods for using the tool (online, integral part of therapy, or both). Phase I deliverables should include a Final Phase I report that includes: (1) a detailed design of the art therapy and storytelling therapy authoring tools with storyboards for user interface and design at a minimum, (2) experimental results from such toolsets, and (3) a Phase II plan.

PHASE II: Develop, demonstrate, and validate a proof of concept design of the web based art therapy and storytelling therapy authoring tools. Produce a prototype art therapy and storytelling therapy authoring tools on a standalone system with the expectations of integrating into a network deployable web based health care system to be identified at the Phase III timeframe. The required deliverable for Phase II will include: the prototype system, demonstration and testing of the prototype system, and a Final Report. The Final Report will include (1) a detailed design of the prototype art therapy and storytelling therapy authoring toolsets, (2) the experimental results from such toolsets, and (3) a plan for Phase III.

PHASE III: In Phase III, delivery of mature web based art therapy and storytelling therapy authoring tools that will allow service members to tell their own stories related to deployment experiences in a simple, intuitive Web Browser based graphic novel/sequential art format that would be delivered and integrated into a military medical health system would be expected.

Potential dual use of the toolset could be applied to the commercial medical health services for as useful techniques for helping “non-military” individuals traumatized by life experiences process memories and channel emotions through a healthy outlet. Tools can also be used to develop educational tools for children to include the development of language skills and narrative ability.

The research is currently at the PHASE II level. There are 4 research performers under contracts working on different solutions to this problem space. Kinection, SIFT, Intific, and E-Line Ventures provide the following individual snapshot status of their progress in ongoing research to date.

Kinection: The Warrior Stories Platform

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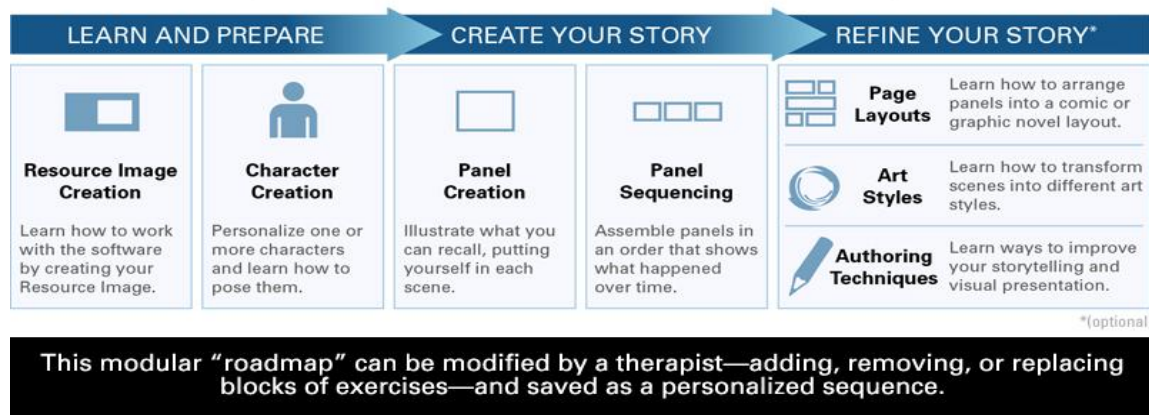
For returning combat veterans, memories of violent and traumatic experiences can be so haunting that everyday life becomes difficult to navigate. The prevalence of post-traumatic stress disorder (PTSD), traumatic brain injury, and other trauma-related illness speaks to the serious impact combat experience can have on mental health. Veterans return home from battle only to find they may have to struggle to integrate their experiences and adjust to a new understanding of themselves.

Kinection's Warrior Stories Platform is a therapeutic software program whose primary goal is reducing symptoms of trauma through art and narrative therapy. Kinection has partnered with The George Washington University Department of Art Therapy, a leading research and educational institution, to consult on the design, development and testing of the Warrior Stories Platform. Defining aspects of the Platform are its modular structure, therapeutic and novelization phases, and focus on rich 2D content.

Modular Structure

There are many different approaches to art therapy, and individual therapists frequently modify their approaches to the needs and circumstances of their clients. A system designed for only one specific therapeutic approach likely won't enjoy wide adoption. Kinection designed the Warrior Stories Platform using a modular structure that supports multiple therapeutic approaches, toolsets, and libraries. Therapists can use built-in modules based on established therapeutic approaches, or they can design and use their own sequence of exercises as a guided experience with their clients.

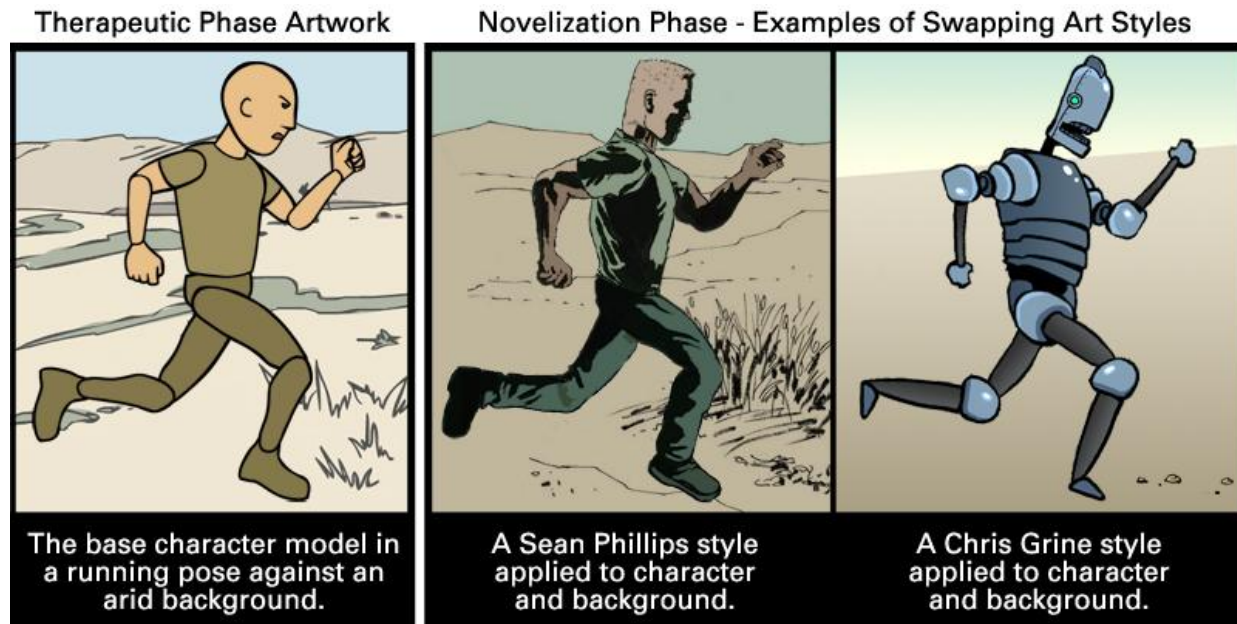
WARRIOR STORIES GENERAL ROADMAP



Therapeutic and Novelization Phases

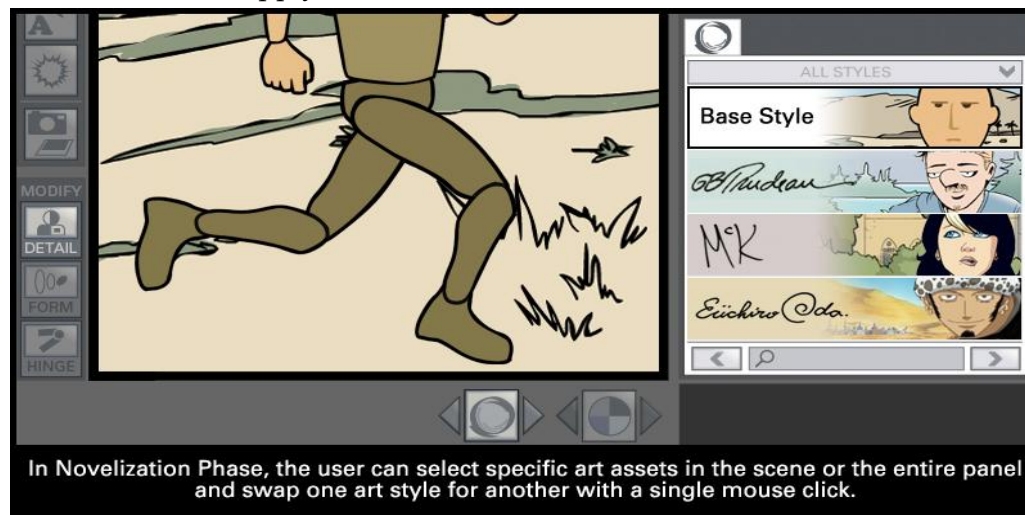
The Warrior Stories Platform design is divided into two distinct, complementary phases. The

Therapeutic Phase emphasizes speed and ease of use over visual complexity, providing a faster route to therapeutic goals while limiting potential frustration. The process, usually facilitated by a therapist, features specific therapeutic exercises, simplified characters, and targeted art libraries. Once the author has concluded the activities in this Therapeutic Phase, a secondary Novelization Phase becomes available, with opportunities to expand the narrative elements, arrange panels into comic page layouts, and swap art styles.



2D Art Approach

The Warrior Stories Platform has been designed to utilize 2D graphics--the standard in the graphic novel world--so users are already familiar with the visual conventions. The flat canvas presentation is easier to navigate and populate than a 3D modeling environment, lightening the cognitive load for users. The 2D graphic format makes it possible for artists in the comic and graphic novel community to create their own signature versions of the content library, resulting in a growing palette of visual styles that the users can apply to their stories.

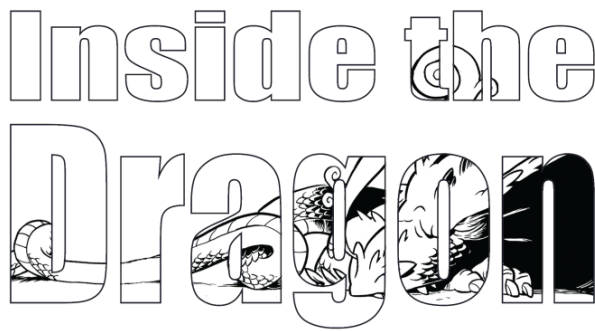


Note: work is still in process under Phase II.

SIFT: Sequential Art via Game Assist (SAGA)

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SIFT has designed Sequential Art via Game Assist (SAGA) to help people suffering from PTSD address their trauma through exercises that leverage the visual nature of comics. SIFT created SAGA in partnership with clinical researchers at the Department of Veterans Affairs and nationally noted comic author artist Zander Cannon. SAGA provides the technology bridge between evidence based PTSD therapy concepts and an on-line game to create comics. SAGA designed the game and comic aspects of SAGA to help overcome the avoidance symptom of PTSD that prevents veterans from seeking help. SAGA uses the repeated editing of veterans' trauma story comics to provide a new form of exposure therapy. Rather than start with the most intense memories, SAGA starts with less intense memories and helps users build the skills necessary for successful treatment.



The SAGA game sends users on in-game missions to collect fragments of their trauma story, while always managing the expected intensity to prevent overwhelming players with anxious feelings. The unique combination of pictures and words allows players to make progress on their stories quickly without suffering writers block. SAGA also provides PTSD education illustrated in comics that provide examples of good story telling techniques in comics.

SAGA requires no drawing skills, concentrating instead on they story, which creates a better comic and produces more therapeutic results. SAGA players may choose to use online drag-and-drop tools or pen and paper to depict their story.

SAGA customizes the experience for each veteran, pushing players to engage their trauma at a level they can handle. SAGA is scheduled to enter a clinical trial in January 2014 to measure its effectiveness. While SAGA aims to provide the therapy necessary to alleviate PTSD symptoms, the system also intends to



educate veterans and help change their attitudes toward traditional therapy. A local news station described the SAGA technology. You can find the video at <http://kstp.com/news/stories/S3090849.shtml>.

Assuming a successful clinical trial, SAGA would move onto Phase 3 where SIFT would create an online game environment that allows veterans to interact and support each other. SAGA Phase 3 technology would provide guide rails on interaction to ensure mutual support and positive therapeutic interactions. SAGA Phase 3 would provide an effective outreach tool to veterans currently not taking advantage of the therapy options provided by the VA, making a large impact on long-term veteran health. Note: Work is still in process under Phase 2.

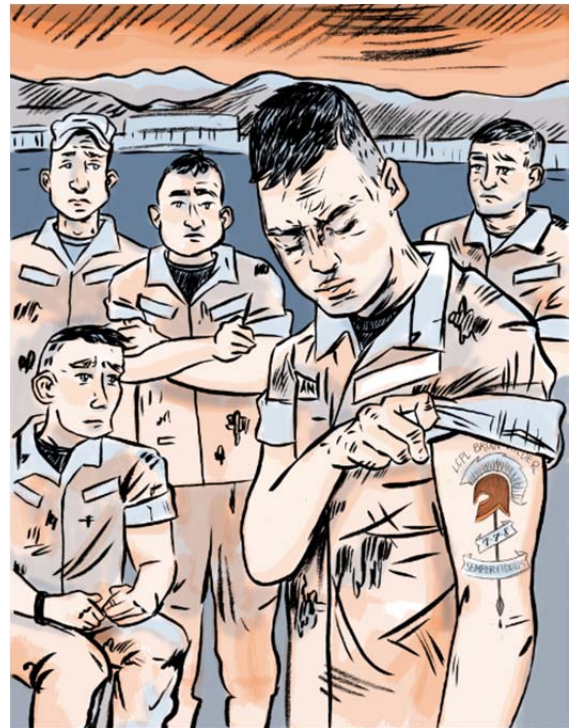
E-Line Ventures:

Online Graphic Novel/Sequential Art Authoring Tools for Therapeutic Storytelling.

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E-Line Ventures and its partners, Theater of War Productions and Sequential Artist's Workshop, are working on a Phase 2 DARPA SBIR project that features three inter-related components: a graphic novel, a drag-and-drop comic authoring tool, and an educational curriculum.

All three components would be designed from the ground up to de-stigmatize psychological injury and PTSD by placing them in the larger context of an ancient warrior narrative and storytelling tradition relevant to the community we seek to serve: service members, veterans and those who support them. The graphic novel would be based on stories from Homer's *Odyssey*, and would be designed to emphasize similarities between the homecoming and re-integration issues faced by Odysseus and his crew with those of contemporary American soldiers. The graphic novel would draw out narrative and visual story elements in the ancient source material that are of particular relevance to



service members and veterans today. It would invite service members and veterans to see their own struggles and strengths reflected in an ancient warrior narrative, helping them to re-contextualize their experiences, re-frame their stories and pursue a path to recovery.

The second component of the project would be a drag-and-drop authoring tool. The tool would feature art culled from the graphic novel (e.g. visual assets extracted from the completed graphic novel such as characters, backgrounds, related objects) and other relevant assets designed to allow veterans to tell sequential art stories with little or no illustration and drawing skills.

Finally, E-Line would also create an educational curriculum, embedded within the drag-and-drop tool, to introduce the fundamentals of sequential art. The curriculum would utilize examples from the visual asset library to guide users both in learning to create sequential art and in telling their own stories in this visual medium. The three components are illustrated below:

E-Line plans to accomplish these goals by presenting several stories, by artists or teams with varying styles, adapted from key moments in the original text of the *Odyssey*, framed by an overarching narrative that pulls the whole thing together. E-Line seeks to publish the completed works for the benefit of service members, veterans and the general public through consumer, military and mental health/therapy channels, both on-line and off-line. Note: Work is still in process under Phase 2.

Intific, Inc.: IN-Comics; Art Authoring Tools for Therapeutic Storytelling



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IN-Comics is an innovative online graphic novel and sequential art authoring tool approach for therapeutic storytelling. "The process of art therapy is based on the recognition that man's most fundamental thoughts and feelings, derived from the unconscious, reach expression in images rather than words" Margaret Naumberg, one of the first major theoreticians of art therapy wrote in 1958. Intific, Inc. believes that in the modern digital age it is now possible to fuse this fundamental method of human expression with our other most powerful drive: to tell stories. Mark Turner, a well-regarded cognitive scientist and neuroscientist, summarized the power of stories in his 1996 book: "Story is the basic principle of mind. Most of our experience, our knowledge and our thinking is organized as stories." But imagine the potential impact if we could take this fusion one step further and combine

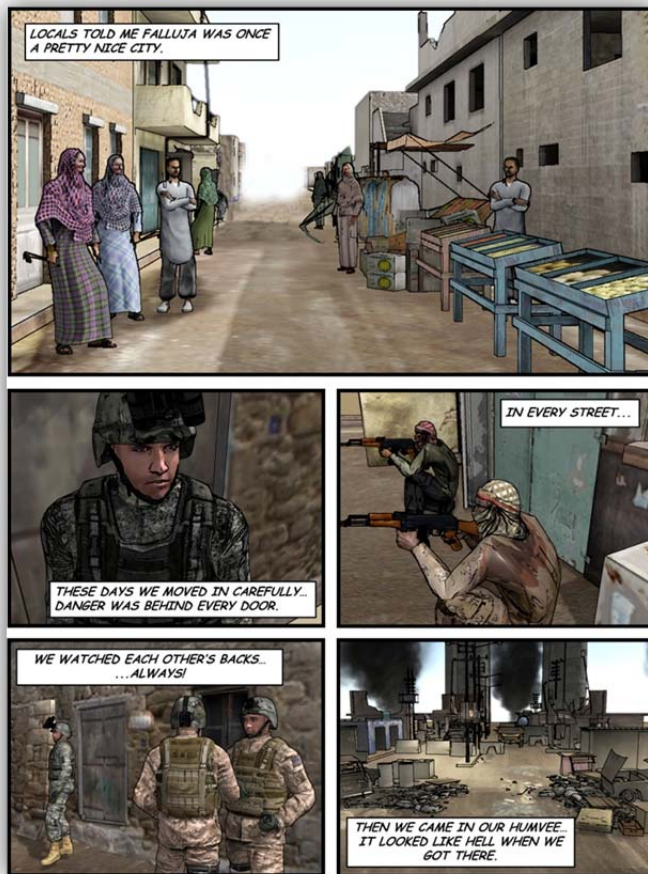
image making, storytelling and the modern cultural phenomena of video games in service of healing and recovery. This is what we have set out to accomplish.

The advent of tablet and smart phones and their rapid proliferation has put a powerful set of technologies in the hands of budding artists, enabling their ability to tell vibrant, graphical, next-generation stories with an exceptionally low barrier to entry – all one needs is talent, ambition and time. Individuals with digital experience and artistic skill have responded in large numbers. By January 2007, over 38,000 web comics had been published and this figure is expected to continue to grow. However, the barrier to entry is financially high and ultimately limited by the knowledge base and ability of the creators themselves. What is required is a software tool suite and distribution platform that makes it easy and intuitive to create a narrative to express the difficult Psychological Health (PH) issues that often beset our military personnel.

IN-Comics represents a unique opportunity. It aims to create a unified strategy from high concept to deployment, merging art therapy theories and research with the practical experience of veteran therapeutic practitioners and fold that insight into an authoring and delivery platform created by expert graphic tool designers. Shaping this vision would be storytelling mass-media experts led by veteran software and program management leaders who have delivered literally hundreds of professional quality electronic experiences.

The overall goal of *IN-Comics* is to develop a new and integrated approach to art therapy. Currently, therapeutic efforts are insular, individually focused on activities involving stress management and reduction techniques, cognitive restructuring and imaginal exposure therapy efforts, resilience enhancement, and media-specific art therapy techniques. None involves cutting-edge digital art creation. As a result, the Intifac approach to address the pressing issue of military psychological health is unique.

The *IN-Comics* platform is designed to integrate all of these techniques into a single user experience providing both entertainment and gradual introduction to art therapy tools and techniques. Equally important, our approach seeks to move beyond the definition of these as tools for therapy. It is our belief that participation in 'therapy' for this audience in itself runs the risk of stigmatizing the user. Needing therapy suggests a damaged warfighter in a military society where personal strength is a key attribute. Having a 'disorder' suggests



not only a diagnosis but also an affliction. Initially, being asked to engage in self-expression can be in itself a threatening experience that many veterans would want to avoid. While these conditions might support using any approach, we do not believe that calling attention to them would necessarily be the most effective tactic. Thus, we have turned to a game-based presentation in which to wrap these therapeutic techniques to create a less threatening and more supportive environment. Note: Work is still in progress under Phase 2.

CONCLUSION

PROGRAM SUMMARY

The Online Graphic Novel/Sequential Art Authoring Tools for Therapeutic Storytelling research initiative accomplished much during Phase 1. First, it has brought together research scientists, software developers and graphic novelists to create a new research community that did not previously exist. It has created a Phase 2 framework for developing proof-of-concept and prototype GNAT systems to help active duty personnel and veterans recover from post-traumatic stress. Finally, it has initiated a dialogue about the possible use of “graphic novel” elements and “comics” in other contexts for psychological health, training and education. In December 2012, DARPA and the Department of Education issued a joint SBIR solicitation (ED-IES-13-R-0008) that included a request to develop computer science education tools that were hybrids of graphic novels and videogames. The program is still awaiting Phase 1 results at this time. Within both programs, we have started referring to the use of these approaches as “Serious Comics” or “Impact Comics”. The ultimate effectiveness of these programs will help determine if these techniques can be developed similarly to “Serious Games” which have been widely and successfully adopted across both the military and civilian sectors over the past decade to enhance training, education, and health.

TRANSITION PLAN

This process started when DARPA issued the SBIR Topic call for proposals in July 2012. The performers were instructed to begin looking for transition partners from day one of the Phase 1 effort. By the conclusion of the research effort under Phase 2 contracts, the performers are expected to have found transition partners and outside funding vehicles or amendments to those in the DoD Military Medical Services and/or alternate partners in the commercial sector. The outside sources would fund continued research and integrate it into day-to-day use as one alternative treatment tool for service members to utilize in their recovery efforts.

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